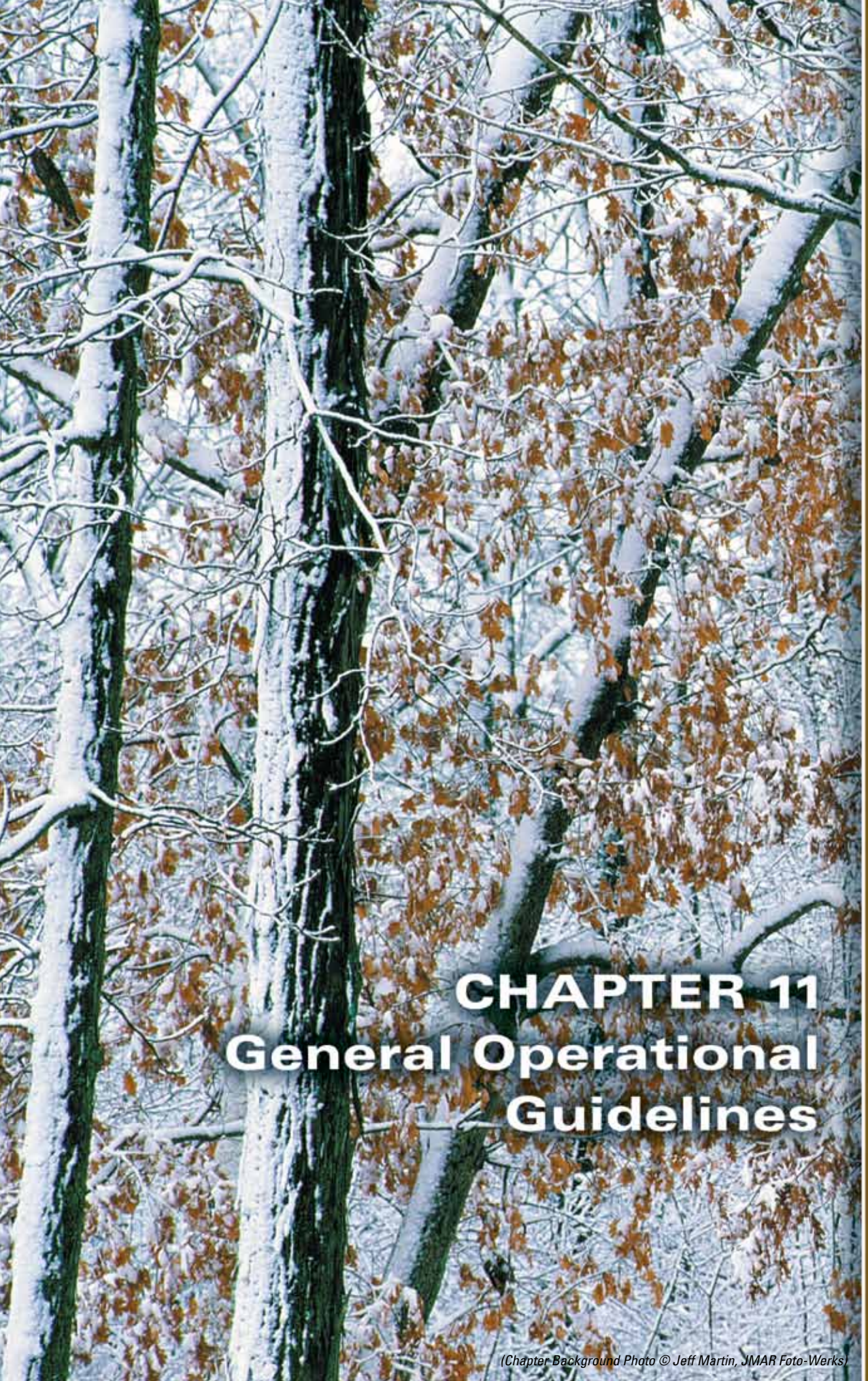

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CHAPTER 11
General Operational Guidelines

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CHAPTER 11
GENERAL OPERATIONAL GUIDELINES

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OPERATIONAL CONSIDERATIONS

Timing and Coordination of Activities

Timing forest management or recreational activities can be constrained by 1) pre-existing conditions, regulations, or limitations such as road load limits, forest access limitations, risk of introducing and spreading invasive species and forest fire hazard conditions, and 2) seasonal conditions that specify appropriate times for such activities as herbicide treatments, tree planting and road construction.

- Conduct forest management activities when soil conditions are firm enough to support the type of equipment being used, in order to protect soil productivity and minimize damage to any cultural resources that may be present (see 4.3).
- Plan for removal of equipment and cut material from wetland areas prior to thawing at the end of the winter season, or leave it until the next winter.

TIMING AND COORDINATION OF ACTIVITIES TO REDUCE NOISE AND VISUAL IMPACTS

- Avoid management operations during periods of peak recreational use whenever possible.
- Reduce noise in early morning, late evening and other appropriate times when possible.
- Selectively restrict use of recreational facilities to avoid conflict with management activities.
- Temporarily relocate recreation trails away from management activity areas.
- Inform and educate recreational users regarding management issues, limitations and timing prior to, during and after management activities.
- Time management activity with consideration for public-use patterns.
- Minimize direct conflict with forest recreational users during peak use and special event periods.

Figure 11-1: Winter harvesting is one example of timing forest management activities to protect soils, especially in lowland areas such as this black spruce stand.

- In wetlands, plan to conduct forest management activities when soil is frozen or firm enough to support equipment being used. Evaluate the site based on weather conditions to ensure adequate support for equipment to prevent or minimize rutting. Examples of weather conditions that could be cause for concern include heavy rain, flooding, significant snow before frost, and three consecutive nights above freezing after frost has been established.
- Plan to conduct all activities during the preferred operating periods for site and soil conditions. Preferred operating periods for a site may vary due to local and seasonal climatic conditions, equipment being used, operating techniques, and presence of invasive species (see 3.4).
- Combine and integrate forest management activities where appropriate to reduce or eliminate the need for multiple entries by heavy equipment. For example, full-tree skidding may be used for preparation of Jack pine seed beds, eliminating the need for additional site preparation.
- Consider timing operations to minimize the risk of introducing or spreading invasive insects and diseases, for more information refer to Table 8-1A through 8-1H, pages 8-9 through 8-18 or additional resources in Chapter 8: Invasive Plants, Insects and Diseases.
- Protect reserve areas and structural habitat components retained in previous stand treatments.

Figure 11-2: The new leaves of buckthorn emerge beside the berries from last year.

Designing Operations To Fit Site Conditions

- Avoid unwanted impacts to a site by determining the preferred operating season, as well as the costly process of moving equipment from a site, or shutting down operations if negative impacts are occurring.
- Take into account that the preferred operating season may vary for any one site depending on soil characteristics, local climatic conditions, equipment being used, and operating techniques. The use of low ground pressure (LGP) equipment and such operating techniques as using slash mats to drive on, can extend operating seasons on low-strength soils.
- Identify occurrences of invasive species, and evaluate their levels of threat to the regeneration of forest or other desirable vegetation, as well as human health and safety.
- Moving equipment from site to site may aid in the spread of invasive plants or vegetative parts that can take root in the new location. Equipment may need cleaning before it is moved from an infested site into an area that is free of problem invasives (see 3.2, 3.3, 4.4, and 4.5).
- To help prevent spread of invasive plants, monitor, control and treat infestations prior to and after completion of forest management activities (see 4.2).
- To help prevent introducing or spreading invasive insects and diseases, follow guidance pertinent to the forest type. For more information refer to Table 8-1A through 8-1H, pages 8-9 through 8-18 or additional resources in Chapter 8: Invasive Plants, Insects and Diseases.
- Soil susceptibility to compaction, rutting and puddling is primarily dependent on soil texture and moisture content. Use caution when operating heavy equipment on sites whenever adverse soil impacts are likely, especially during the following times:
  - During spring and early summer months.
  - Immediately following heavy rains.
  - During the period between when transpiration ceases in the fall and before freeze-up occurs.

Managing and Minimizing Infrastructure

In the context of forest management activities, infrastructure is defined as the network of access roads, approaches, trails, and landings used to move equipment onto and around a forest management site. Any reduction in the total amount of area occupied by such infrastructure reduces the impact on soil productivity, as well as potential impacts to cultural resources, residual trees through wounding, riparian areas, and wildlife habitat.

- Consider future management activities that use common infrastructure for management of adjacent stands or ownerships. Develop or plan infrastructure accordingly.
- Examine existing access routes to determine if they are appropriate. Consider whether relocation would provide a better long-term access route.
- Where appropriate, limit direct trafficking of sites to the smallest area needed when planning management activities such as harvesting and site preparation.

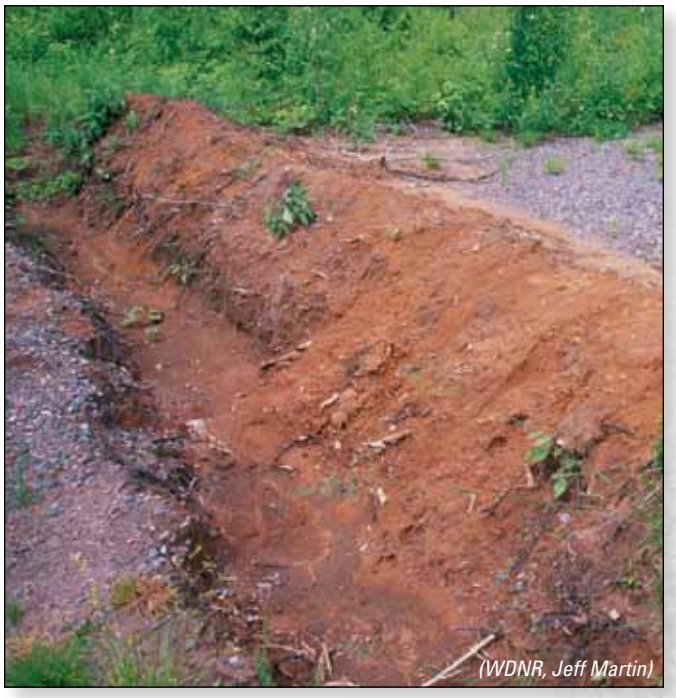

Figure 11-3: At the end of a forest operation, a simple earthen traffic barrier may be satisfactory for preventing unwanted vehicle traffic.

MANAGEMENT ACTIVITY PLANNING CHECKLIST

- ☐ Develop a forest management plan with management objectives for your property.
- ☐ Make a list of site-specific Forestry BMPS for Water Quality (WQ-BMPs) needed to protect water quality. Include in your timber sale contract, timber harvest plan, and forest management plan.
- ☐ Investigate cost-share options for implementing WQ-BMPs.
- ☐ Plan management activities to protect water quality by considering site conditions.
- ☐ Plan management activities to ensure that habitat of any endangered or threatened plant or animal species is protected.
- ☐ Prepare a map of your property with sensitive areas and other important features identified to use during forest management activities.
- ☐ Reference mapping resources and confirm site conditions in the field when identifying sensitive areas.
- ☐ Obtain necessary permits and file needed notices before beginning any timber harvesting. *Wisconsin's Forestry BMPs for Water Quality Field Manual* contains more permit information including a list of contacts by county.
- ☐ Stabilize any bare soils as soon as possible to prevent erosion. Critical areas to protect include steep slopes, erosion prone sites, riparian management zones, wetland filter strips and stream crossings.
- ☐ Have a spill containment and clean-up kit on-site whenever equipment is present.
- ☐ Investigate and address invasive species concerns (see Chapter 8: Invasive Plants, Insects and Diseases).

Table 11-1: This checklist can be used when planning forest management activities.

PROTECTING CULTURAL RESOURCES

Figure 11-4: To be effective, gated road closures must be located properly. Otherwise, vehicle traffic will simply go around as they have on this forest road.

Some types of cultural resources are protected by federal or state law (see Chapter 6: Cultural Resources, Cultural Resource Management and the Law).

- When feasible, avoid management activities within cultural resource areas. Delineate such areas with flagging, signs or temporary fencing, and make sure that loggers and equipment operators understand that there is to be no work in the marked area.
- When it is not feasible to avoid cultural resource areas during forest management activities, protect resources by one of the following measures:
  - Temporarily brace walls and board up windows and doors of historic buildings.
  - Avoid felling trees onto historic buildings, structures or surface features of archaeological sites.
- For cultural resources that cannot be protected from damage, consider data recovery (professional excavation of archaeological sites or documentation of above-ground cultural resources).
- **If a human burial site is accidentally discovered during operations, cease operations immediately in the vicinity of the discovery.** Contact the Burial Sites Preservation Office at the Wisconsin Historical Society, and your local law enforcement agency.
- For the accidental discovery of other types of cultural resources such as archaeological artifacts, temporary suspension is recommended but not required. Suspending operations in the immediate vicinity allows time to contact a cultural resource professional.

FUELS, LUBRICANTS, WASTE, AND SPILLS

Fuels, Lubricants and Waste

Logging, road building and other forest activities require motorized equipment. Antifreeze, fuels and lubricants used in machinery can potentially pollute lakes, streams, wetlands, and groundwater. Planning for forestry operations should include practices to handle solid and liquid wastes generated in the field.

Spills

Report all hazardous substance spills immediately to the Wisconsin DNR by calling the **24-hour Emergency Hotline number at 1-800-943-0003**.

Spills of fuel, lubricants or pesticides during forest management operations can occur as a result of fueling, hydraulic hose breaks, mechanical damage, or vandalism. All spills of hazardous substances that adversely impact or threaten to adversely impact public health, welfare or the environment must be 1) immediately reported to the Wisconsin DNR and 2) cleaned up. In some instances, small quantities of petroleum products and agrichemicals do not require reporting to the Wisconsin DNR. During timber harvesting operations, reporting a spill is not necessary for a gasoline spill less than one gallon, or for a diesel or hydraulic fluid spill less than five gallons, as long as there is no threat to the environment. However, the spill still needs to be cleaned up.

For more details on spill reporting guidelines or cleanup, contact your local Wisconsin DNR Regional Spill Coordinator:

Eau Claire	715-839-3775
Green Bay	920-492-5592
Madison	608-275-3332
Milwaukee	414-229-0838
Rhinelander	715-365-8963
Superior	715-392-0802

NOTE: Proper equipment maintenance will prevent many spills.

BMPs: Spills

The following Forestry BMPs for Water Quality (WQ-BMPs) are general guidelines for spills of fuel and lubricants used in forestry field operations. These practices complement specialized training given to persons using pesticides or other hazardous materials.

- Maintain a spill-containment and cleanup kit appropriate for the materials on the operation. At a minimum, a kit for petroleum products should include:
  1) Plugs and clamps to control a hydraulic line break
  2) A container to catch leaking fluid
  3) A shovel
  4) Oil absorbent sheets, sawdust or other material to absorb fluid

- If a spill should occur, do the following:
  1) Protect yourself and others. Wear protective clothing and use equipment appropriate for any hazardous materials on the operation. Avoid coming in contact with any toxic drift or fumes that may be released.
  2) If able, control the spill; stop the leak.
  3) If able, contain the spill; keep it from spreading. Shovel a dike around the spill. Use absorbent material such as sawdust or loose soil to soak up fluid. Place a bucket under a hydraulic hose break. Keep the spill from flowing into lakes, streams or wetlands.
  4) Isolate the spill material.
  5) **Report all hazardous substance spills immediately to the Wisconsin 24-hour Emergency Hotline at 1-800-943-0003**.
  6) Contact your local Wisconsin DNR regional office for disposal guidance.

POST-OPERATIONAL ACTIVITIES

Figure 11-5: Honeysuckle is a prevalent invader of many Wisconsin woodlands.

- Consider closing roads after operation completion if they will provide access to a cultural resource.
- Remove flagging, signs or other markings that identify a cultural resource when a forest management activity is completed.
- Restore watercourses to approximate their natural condition by removing temporary drainage structures and stabilizing the soil along the banks.
- Stabilize bare soil areas and install water diversion devices and erosion control barriers where appropriate, to prevent or minimize erosion and sedimentation from roads, skid trails and landings into surface water and cultural resource areas.
  - Fill in ruts as necessary, weighing the benefits of filling in ruts on skid trails against the potential for additional impact to soil productivity as a result of equipment used to eliminate ruts.
  - Inspect erosion control measures periodically and maintain or remove as needed.
  - Seed and fertilize as appropriate. Do not use non-native invasive plants or seed mixtures that are not certified weed-free (see 6.1 through 6.4).
- Place traffic barriers where appropriate to prevent vehicles from disturbing recently stabilized areas. Barriers should be visible and well-marked, and they should not present a safety hazard.
- Conduct follow-up visits to areas where structures (e.g., culverts or waterbars) or other protection measures (e.g., seeding of bare areas) are used to minimize impacts on water quality and wetlands. Such visits can help assure that protection measures remain functional.

BMPs: Nonpoint Source Pollution Prevention

The following Forestry BMPs for Water Quality (WQ-BMPs) will help prevent nonpoint source pollution from fuels, lubricants and wastes during forest management activities.

Use biodegradable lubricants whenever practical. Biodegradable lubricants are less toxic than other lubricants, but still need to be disposed of properly.

- Maintain equipment regularly. Check hoses and fittings to prevent leaks or spills.
- Designate specific areas for equipment maintenance and fueling. Locate these areas on level terrain, a minimum of 100 feet from all streams and lakes.
- Collect all waste lubricants, containers and trash. Store them in leak-proof containers until they can be transported off-site for recycling, reuse or disposal at an approved site. **NOTE: It is illegal to dump fuel and lubricants on the land or in water in Wisconsin.**
- Separate all fluids and materials, and keep in different labeled containers to avoid creating "hazardous waste" and expensive waste disposal. Call your local Wisconsin DNR regional office to determine if a waste is hazardous, and for disposal guidelines.

(Best Management Practices for Maine: Protecting Maine's Water Quality)

Figure 11-6: Store empty containers of lubricants and other waste in leak-proof containers until transported off-site.

BMPs: OPERATIONAL ACTIVITIES

BMPs: Invasive Species

The following are Forestry BMPS for Invasive Species (IS-BMPs) that should be considered when carrying out stewardship practices.

- 3.2 Prior to implementing management activities, scout for and locate invasive species infestations, consistent with the scale and intensity of operations.
- 3.3 Consider the need for action based on: 1) the degree of invasiveness; 2) severity of the current infestation; 3) amount of additional habitat or hosts at risk for invasion; 4) potential impacts; and, 5) feasibility of control with available methods and resources.
- 3.4 Plan management activities to limit the potential for the introduction and spread of invasive species.
- 4.2 If pre- or post-activity control treatments are planned, ensure that they are applied within the appropriate time window.
- 4.3 Consider the likely response of invasive species or target species when prescribing activities that result in soil disturbance or increased sunlight.
- 4.4 Prior to moving equipment onto and off of an activity area, scrape or brush soil and debris from exterior surfaces, to the extent practical, to minimize the risk of transporting propagules.
- 4.5 Take steps to minimize the movement of invasive plants, insects, and diseases to non-infested areas, during forest stewardship activities.
- 5.4 Where site conditions permit, allow natural revegetation of the roads, skid trails, and landings to occur. If seeding or planting is necessary to minimize the threat of highly damaging invasive species from spreading, use native seed or non-invasive cover crops for revegetation.
- 6.1 Limit the introduction and spread of invasives during reforestation or revegetation site preparation activities.
- 6.2 Revegetate or reforest as quickly as feasible after site disturbance (see also 5.4).
- 6.3 When consistent with site conditions and goals, allow natural revegetation of the ground layer to occur. If seeding or planting is necessary to minimize the threat of highly damaging invasive species from spreading, use native seed or non-invasive cover crops for revegetation (see also 5.4).
- 6.4 Select plant materials that are site appropriate to favor establishment and vigor.

Figure 11-7: Cleaning equipment to prevent the spread of annosum propagules.